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Activité physique

The Benefits of active transport related to health and well-being among some Algerian postmen

Les avantages du transport actif lié à la santé et au bien-être des facteurs algériens

Mohammed ZERF

Université Abdelhamid Ibn Badis Mostaganem. Mostaganem, Algérie

Auteur correspondant *:* biomeca.zerf@outlook.com

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Abstract *Introduction*. Nowadays, the world is facing an unusual increase in obesity rates, interpreted by similar studies to the reduction of physical activity time, compared to the inactivity time relative to our daily life. The case of workers/postmen, who need to walk or cycle up for six miles each weekday as aerobic exercise to achieve weight loss relative to enhance physical fitness, was studied. ***Objectives****.* To examine the influence of this phenomenon, this study was based on the transportation used by our factors. ***Population and Methods:*** Factors (n=54) from Algeria Telecom of Naama was participated in this study. Their daily tasks were evaluated, according to the delivery packages in which they deliver with different means of transportation. While to test the transportation effectiveness and its relationship to worker health, we rely on the Rockport Fitness Walking Test to assess aerobic fitness, which is a well-known approach to weight loss and fitness. ***Results.*** Based on applied statistics, we confirmed the need to encourage our workers to use active transportation on foot or by bike. Active transportation was an effective way to improve the physical fitness and well-being of the body weight of our workers. ***Conclusion.*** Active transportation as walking or bicycling is qualified to meet the physiological capacity required in a daily physical condition to improve or maintain fitness relative to the motorcycle as an inactive means of transportation.

Keywords: *Transportation, Health, Well-being, Algerian postal worker*

Résumé *Introduction.* De nos jours, le monde est confronté à une augmentation inhabituelle des taux d'obésité, interprété par les études similaires à la réduction du temps d'activité physique, par rapport au temps d'inactivité relative à la vie quotidienne. Le cas des facteurs, qui ont besoin de marcher ou de faire du vélo pour améliorer leurs conditions physiques, est étudié. ***Objectifs.*** Pour examiner l'influence de ce phénomène, cette étude est basée sur les moyens de transport utilisés par les facteurs. ***Population et méthodes.***

Des facteurs (n=54) d'Algérie Telecom à Naama ont participé à cette étude. Leurs tâches quotidiennes ont été évaluées en fonction des paquets livrés avec différents moyens de transport. L'efficacité de leurs moyens de transport et sa relation avec leur santé ont été déterminées, sur la base du test Rockport Fitness Walking, pour évaluer la forme physique aérobie, qui est une approche bien connue de la perte de poids et de la condition physique. ***Résultats.*** Sur la base des statistiques appliquées, il est confirmé la nécessité d'encourager les travailleurs à utiliser le transport actif à pied ou à vélo. Le transport actif est un moyen efficace pour améliorer la condition physique relative au maintien du poids pour la santé et le bien-être des travailleurs. ***Conclusion.*** Le transport actif, avec la marche ou à vélo, est qualifié pour répondre à la capacité physiologique requise dans une condition physique quotidienne pour améliorer ou maintenir l'état de santé, par rapport à la moto, comme moyen de transport inactif.

Mots-clés: *Transports, Santé, Bien-être, Facteur algérien*

Introduction

Human resources are the most important sources in a society, well the most important success factor in any framework is to have healthy employees, engaged in physical exercises [1]. Recognised in similar studies as a bodily activity to enhance or to maintain physical fitness and overall health conditions lifestyle [2]. At least 30 minutes of individual activities, as well as daily fitness routine for a good way to control or reduce body weight and body fat levels [3, 4]. However, in the case of our sample [5], similar report that the overall obesity risk rate for the postman is about 9% to 21% for male, which required, from the postmen to walk or cycle up to six miles each weekday routine. Regarding this fact, our interest in this modest study comes from the attention given to the potential health benefits of increased cycling in developing countries [6], as a recommendation for their population [7, 8]. While this measure is not in accordance with the elaboration of Algerian roads, revoked in the absence of the bike network, in comparison with the other means of transportation [9]. Affirmed by the Health and Community Design as a comprehensive examination of how to build the environment, which encourages or discourages physical activity as the achievement of bikeways in motor vehicle traffic. The case of the Boston Cyclists Union, which encouraged the cycling to become popular, means daily transport [10, 11]. Seen our roads are insufficient to meet the recommended levels of weekly physical activity worker and their well-being [12], in promoting and supporting the health of workers [13, 14]. Our investment in this study was based on the absence of the bike network in the Algerian roads network traffic, which favoured the walking activities, and the motorcycling traffic [15]. In the opposite, cycling is one of the most means transport of workers used in the developing country, as a benefit exercise activity integrates into their routine lives [16, 17], and an assessing health and fitness related to present and future health outcomes [18].The concept of cycling for health and fitness of Anderson *et al.*, from Denmark, who report that the mortality associated with physical activity during leisure time, work, sports, and cycling to work are attributable to outweigh injury-related life-years lost [19]. Well, de Hartog *et al.*, discussed the question: Do the health benefits of cycling outweigh the risks? The study showed that the average of mortality gains/losses returned to individual rate of regular physical fitness [20]. While Rojas-Rueda *et al.*, explored in their study, the estimation of risks and benefits to health of travel by bicycle, using a bicycle sharing scheme, compared with travel by car in an urban environment [21]. The research ended that low-cost public bicycle sharing systems aimed at encouraging commuters to cycle. As similar studies showed that active transport, policies such as bike promoted the health benefits of physical activity [22]. This study was the first Algerian study on this topic, aimed to contribute to what has already been studied and to open the door for further studies linking to bicycle among other Algerian populations.

The purpose of this study was to explore the fundamental differences between postal workers cyclists and not-cyclists (walkers and motors), to discuss the best ways to achieve good health and fitness in relation to

mode of transport and to encourage our community to use the active transport.

Population and methods

Descriptive methods as qualitative techniques were used, aimed to confirm that the active transport was one of the best ways for people/ postal workers to improve health and fitness.

Study design

This study, based on Rockport Fitness Walking Test, was a challenge to choose the most efficient postal workers. Based on the maximal oxygen consumption, maximal oxygen uptake, peak oxygen uptake or maximal aerobic capacity (VO_2 max) was calculated from one-mile track walk, gender, and age and body weight [23, 24].
Although to calculate VO_2max, we based on the formula of Kline (1987) [25]: VO_2max (mL/min/kg) =132.853 - (0.0769 × Weight) - (0.3877 × Age) + (6.315 × Gender) - (3.2649 × Time) - (0.1565 × Heart rate).To analyse the obtained score VO_2max, we choose the normative data of Heywood (2006) [26] for Male to determine the corresponding fitness category [27] (Table I).

Table I. Normative data of VO_2max for Male (mL/kg/min) categorizing fitness

Age	Very Poor	Poor	Fair	Good	Excellent	Superior
13-19	<35.0	35.0 – 38.3	38.4 – 45.1	45.2 – 50.9	51.0 – 55.9	>55.9
20-29	<33.0	33.0 – 36.4	36.5 – 42.4	42.5 – 46.4	46.5 – 52.4	>52.4
30-39	<31.5	31.5 – 35.4	35.5 – 40.9	41.0 – 44.9	45.0 – 49.4	>49.4
40-49	<30.2	30.2 – 33.5	33.6 – 38.9	39.0 – 43.7	43.8 – 48.0	>48.0
50-59	<26.1	26.1 – 30.9	31.0 – 35.7	35.8 – 40.9	41.0 – 45.3	>45.3
60+	<20.5	20.5 – 26.0	26.1 – 32.2	32.3 – 36.4	36.5 – 44.2	>44.2

Heywood (2006) [26] *VO_2max was a measure of a person's aerobic fitness (mL of oxygen/body weight/min).*

For the conditions, we are focused on the same social status, lifestyle and education of the total sample of Algerian Telecom employees. For the success of the experiment, our protocol tests were based on Rockport Fitness Walking Test and body fat related to the level fitness. The population was divided, based on transportation of three categories (walker-bike-motorcycle). Required tests Resources: Rockport Fitness Walking Test [28]**:** The purpose of this test is to walk as fast as possible for 1 mile (1609 meters). To perform the test, a watch with a second hand is needed to record a time. This test involves the completion of a 1-mile (1.6-km) to estimate VO_2max, indicate in similar as a valid measure of aerobic capacity [29], reported in medical studies as an efficient test to recording the cardiorespiratory system, relative to the use of oxygen [30]. Although to judge the performance time, we must look up to estimate VO_2max, and their corresponding fitness category listed in Table I [31].

Subjects

Postal workers represented 54 male factors, Telecom employees of Naama city in 2014. They voluntarily agreed to participate in this challenge (Fitness Walking), their average age was ≤30 years, and their work experience exceeded 5 years, hooded in their job. The only difference between them was the transportation used to perform their daily task work as a lifestyle. All participants were postal workers, normal people, without any medication, or sporting past, and with good habits (no-smoking-no-alcohol).

Body mass index (BMI) and health

BMI is a reliable indicator of body fatness and is one measure commonly used to assess whether body weight is healthy [32]. It is based on a calculation of height and weight [33], BMI = weight (kg)/height^2 (m^2), and optimal weight in relation to height ranges between a BMI value of 20 and 24 [34].

Statistical analysis

All calculations of variables were carried out using SPSS v 20, with a significance level at 0.05. The baseline characteristics of the sample normality and homogeneity were calculated by Shapiro-Walk and Levine test. The ANOVA followed by the LSD were applied to determine the difference between the groups. The correlations between variables (independent and dependent) were calculated by Pearson coefficient.

Results

According to the normative data VO2max cited in Table I, our total sample (Table II) was better than fair [35], agreeing to standards provided by expert panels [36], which confirmed that the human who had a maximum oxygen consumption (VO2max) of >35 mL/kg/min (i.e. 10 METS) had sufficient fitness for good health [37].

Table II. Characteristics of the total Postmen (normality and homogeneity)

Age	Very Poor	Poor	Fair	Good	Excellent	Superior
13-19	<35.0	35.0 – 38.3	38.4 – 45.1	45.2 – 50.9	51.0 – 55.9	>55.9
20-29	<33.0	33.0 – 36.4	36.5 – 42.4	42.5 – 46.4	46.5 – 52.4	>52.4
30-39	<31.5	31.5 – 35.4	35.5 – 40.9	41.0 – 44.9	45.0 – 49.4	>49.4
40-49	<30.2	30.2 – 33.5	33.6 – 38.9	39.0 – 43.7	43.8 – 48.0	>48.0
50-59	<26.1	26.1 – 30.9	31.0 – 35.7	35.8 – 40.9	41.0 – 45.3	>45.3
60+	<20.5	20.5 – 26.0	26.1 – 32.2	32.3 – 36.4	36.5 – 44.2	>44.2

The baseline characteristics of the sample normality and homogeneity were calculated by Shapiro-Walk and Levine test.

The BMI values of the workers ranged between normal weight (BMI between 18.5 to 24.9), and overweight (BMI between 25.0 to 29.9) [38]. A significant negative correlation was found between BMI and VO_2max (mL/kg/min), suggesting a possible effect of body fat on cardio-respiratory function [39].

Table III showed descriptive statistics of the variables included in the current study, where the LSD was significantly confirmed in all the comparison conducted by ANOVA.

The multi-comparison LSD (Table IV) showed that weight was in the benefit of motorcycle followed by bike, and walker, as the best optional healthy body archives in this study.

One mile was in the benefit of walker, followed by bike, and motorcycle, as shoddy performance archives in this test. BMI was in the benefit of motorcycle, followed by bike and walker, as the best optional healthy body. VO_2max was in the benefit of walker, then bike, and motorcycle, as poor performance fitness category. Pearson correlation (Table V) showed a positive correlation between weight and BMI, and time 1 mile in the opposite of maximum volume of oxygen (VO_2max) that was negatively correlated with weight, BMI and time 1 mile. Through table II, III, IV and V, succeeding the normative data VO_2max values, BMI ranges, less time in one-mile and weight as dependent variables, all comparisons were located in benefit of the active transport, walker, followed by bike and motorcycle, as poor performance.

Discussion

This study aimed to explore the fundamental differences between postal workers cyclists, walkers or motors. Our results reported that the increase of weight reduced the worker capacity, the most apparent in obese subjects [40], according to the similar studies. This study supported that the overall obesity risk rate for postal workers was about 9 to 21% for the male, which required, from the postal workers to walk or cycle up to six miles each weekday routine. Although the results confirmed the findings, which confirmed that levels of weight and body composition were inversely related to fitness [41], in our case, we refer to the benefit of active transport without motorised forms of transport that increased cardiovascular fitness, to maintain a fit healthy body weight in comparison with the motorcycle. Indeed, our results confirmed the benefit of walking and cycling, as physical activity in preventing weight gain among the workers [42]. research that confirmed the benefits of bicycling, as enhancing daily physical loads. From these advantages, we confirmed walking, as daily active transport which had higher levels of adherence than other forms of physical activity practiced by our workers. Our results lined with the numerous previous reviews, that walking is eminently suited to physical activity prescription as it requires no special skills or facilities and is achievable by virtually all age groups with little risk of injury [43]. Our findings are in agreement with previous Although this evidence explained the benefits of Algerians rounds as an environment that facilitated and encouraged walking, then bicycling as means of transportation. Walking and bicycling as active daily transport, in comparison with the motorcycle, are directly linked to people daily physical activity levels [44], approved by similarities in the active transport that

Table III. Descriptive variables based on the means of transportation used daily by worker

		N	%	Mean SD	Levine		F	Sig.
					Statist	Sig.		
Weight	Walker	22	40.74	72.26±3.35	0.93	0.14	6.821	0.00
(kg)	Bike	20	37.04	75.24±4.78	0.94	0.23		
	Moto	12	22.22	77.65±4.53	0.95	0.73		
Height	Walker	22	40.74	178.00±4.18	0.98	0.92	5.32	0.00
(m)	Bike	20	37.04	175.55±5.47	0.90	0.06		
	Moto	12	22.22	172.52±3.93	0.96	0.81		
BMI	Walker	22	40.74	12.18±1.67	0.95	047	5.38	0.00
(kg/m$_2$)	Bike	20	37.04	13.65±2.21	0.99	0.99		
	Moto	12	22.22	16.33±2.25	0.91	0.249		
1Mile	Walker	22	40.74	20.20±4.74	0.95	0.47	19.97	0.00
(km)	Bike	20	37.04	21.34±2.49	0.98	0.99		
	Moto	12	22.22	24.04±7.68	0.97	0.95		
VO$_2$max	Walker	22	40.74	54.13±5.93	0.92	0,.82	39.08	0.00
(mL/kg/min)	Bike	20	37.04	46.58±4.74	0.91	0.08		
	Moto	12	22.22	38.74±2.49	0.92	0.25		

Dependents variables (Weight-Height- BMI-1MilleVO$_2$max) vs independent means of transportation (Walking bicycling- Motorcycling)

Table IV. Multi-comparison LSD for the variables based on transportation

Variable dependent	(I) VAR00001	(J) VAR00001	Mean Difference (I-J)	Sig.
Weight	Walker	Bike	-2.97*	0.02
		Moto	-5.38*	0.00
	Bike	Walker	2.97*	0.02
		Moto	-2.47	0.12
	Moto	Walker	5.38*	0.00
		Bike	2.47	0.12
1Mile	Walker	Bike	-1.47*	0.00
		Moto	-4.14*	0.00
	Bike	Walker	1.47*	0.00
		motto	-2.67*	0.00
	Moto	Walker	4.14*	0.00
		Bike	2.67*	0.00
BMI	Walker	Bike	-1.14*	0.03
		Moto	-3.84*	0.00
	Bike	Walker	1.14*	0.03
		Moto	-2.69*	0.00
	Moto	Walker	3.84*	0.00
		Bike	2.69*	0.00
VO$_2$max	Walker	Bike	7.54*	0.00
		Moto	15.38*	0.00
	Bike	Walker	-7.54*	0.00
		Moto	7.83*	0.00
	Moto	Walker	-15.38*	0.00
		Bike	-7.83*	0.00

**The average difference is significant at 0.05.*

Table V. Pearson Correlation for the variable Based on a total sample

N=54		Weight	1Mile	BMI	VO_2max
Weight	Pearson coefficient	1	0.34*	0.32*	-0.48**
	Sig. (bilateral)		0.01	0.01	0.00
VO_2max	Pearson coefficient	-0.48**	-0.75**	-0.69**	1
	Sig. (bilateral)	0.00	0.00	0.00	

*The correlation is significant at level *0.05 (bilateral), ** 0.01 (bilateral).*

increased the level of physical fitness [45]. In the opposite, the motorcycle or the motorcar resulted in declines in physical activity related to adding further weight [46], in which the active transporters (walking and cycling) helped the workers to control their excess body weight [47, 48]. As well as the improvement of aerobic capacity relative to VO_2max as physiological parameters related to cardiovascular fitness levels [49] to meet the physiological capacity responses as challenges of the effort physical task works [50]. Since their living is part of the leading causes of preventable death worldwide [51]. From the proofs, cycling is as versatile as well walking, both are more demand for healthy personal mobility [52]. Data showed in similar as benefits relationships between physical activity decline and the increase of BMI (overweight and obesity) [53]. The case of motorcycles, associated with obesity-related to less physical activity [54], confirmed in the present by the data collection and analysis in the case of body gain, which had a strong negative correlation with VO_2max level, heart rate and the time walking performance. However, to estimate the benefits of means transportation as daily task worker, active transport was a positive outcome for the prevention and treatment of many metabolic disorders [55] record in the case of inactive transport which increased the BMI, which was directly related to aerobic capacity expressed relative to body weight [56], resulting from low levels of job-daily work tasks [57]. The case of the present study, which agreed that motorcycling as a mean of transportation increased the weight gain related to the obesity- as a health risk factors associated with a decrease in physical fitness [58]. Moreover, regular physical activity, for a fit body composition request from our workers to be engaged in aerobic exercise as walking and cycling [59].

Conclusion

Our results confirm that active transport improves the weight gain control, which is related to levels of daily physical tasks active than inactive related to reduce disease health risk [60]. Evidence, which agrees that physical activity is essential to improve health, as well as, the quality of the workers life recommended in the present study by active transport, increases the daily routine physical activity [61]. While inactive transport reduces time physical activity and muscle metabolism and other systems of the body, which promotes health and fitness [62], cycling or walking as daily transportation workers, improve the cardio-respiratory fitness [63], that in turn preserve the weight gain [64, 65], confirmed by World Health Organization (WHO), as leader risk factor due to its relation with death relative to daily physical activity levels [66].

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Conflict of interests

None

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